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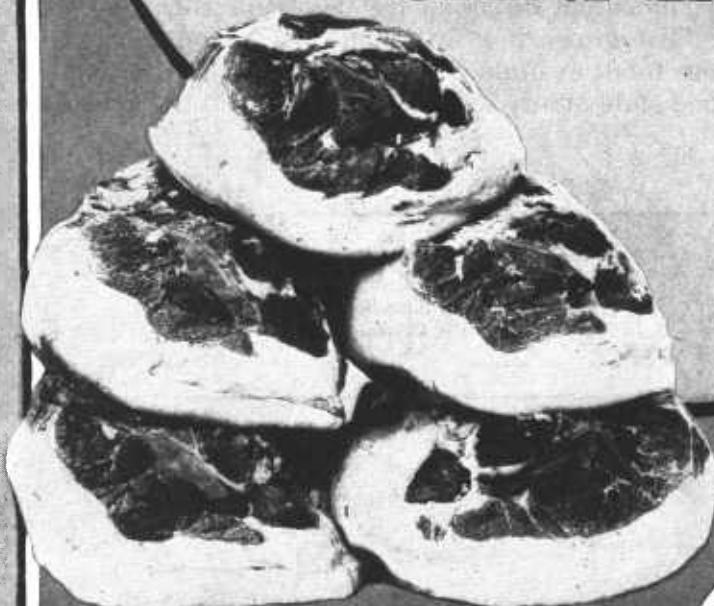
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FARMERS' BULLETIN 1186
UNITED STATES DEPARTMENT OF AGRICULTURE

PORK ON THE FARM

KILLING CURING AND CANNING



EVERY FARM should produce the pork and pork products which are consumed on that farm.

Selling hogs and buying pork involves profits, but not for the farmer engaged in the practice.

Home curing of pork is an old practice. It nearly went out of style, but the style is rapidly becoming popular again.

Home-cured pork, fresh-canned pork, sausage, pudding, scrapple, headcheese, pickled pigs' feet, and lard afford a variety of products to supplement the daily meals.

Preparations of highly nutritious and palatable pork products for home use are easily made.

This publication discusses the details of converting the farm-grown hog into high-class, appetizing, nutritious foods available for use in the fresh, cured, or canned state at any season of the year.

Joint Contribution from the Bureau of Animal Industry

JOHN R. MOHLER, Chief

And States Relations Service

A. C. TRUE, Director

Washington, D. C.

February, 1921.

Have eaten

PORK ON THE FARM.

KILLING, CURING, AND CANNING.¹

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MEAT ANIMALS, especially hogs, may be raised and the meat cured at home for much less than the cost of purchased meat. A market for good country-cured hams, shoulders, and sides is easily found. In spite of these facts, however, the practice of purchasing cured meats has increased among farmers. It may not be practicable for every farmer to butcher and cure the meat from all the hogs he grows, but in nearly every community a few farmers could do it and make good profits. Farmers who sell country-cured meats have very little difficulty in establishing a permanent trade. To accomplish it one must understand the kind of cured meat the trade demands. A well-marbled, juicy, savory piece of meat showing the proper admixture of fat and lean, properly cured and possessing a good flavor, is the kind the consumer desires.

SELECTION OF HOGS FOR BUTCHERING.

HEALTH.

In selecting hogs for butchering, health should have first consideration. Even though the hog has been properly fed and carries a prime finish, the best quality of meat can not be obtained if the animal is unhealthy; there is always some danger that disease may be transmitted to the person who eats the meat. The keeping quality of the meat is always impaired by fever or other derangement.

¹ This bulletin supersedes Farmers' Bulletin 913, Killing Hogs and Curing Pork.

CONDITION.

A hog in medium condition, gaining rapidly in weight, yields the best quality of meat. Do not kill a hog that is losing flesh. A reasonable amount of fat gives juiciness and flavor to the meat, but large amounts of fat are objectionable.

QUALITY.

The breeding of animals plays an important part in producing carcasses of high quality. Selection, long-continued care, and intelligent feeding will produce meat of desirable quality. Smooth, even, and deeply fleshed hogs yield nicely marbled meats.

AGE FOR KILLING.

The meat from very young hogs lacks flavor and is watery, and that from old hogs generally is very tough. The meat of old hogs will be improved, however, if they are properly fattened before slaughter. Hogs may be killed for meat any time after 8 weeks of age, but the most profitable age at which to slaughter is when from 8 to 12 months old.

TREATMENT BEFORE SLAUGHTER.

Hogs intended for slaughter should not be kept on full feed up to the time of killing. It is better to hold them entirely without feed for 18 or 24 hours prior to that time, but they should have all the fresh water they will drink. This treatment promotes the elimination of the usual waste products from the system; it also helps to clear the stomach and intestines of their contents, which in turn facilitates the dressing of the carcass and the cleanly handling and separation of the viscera. No animal should be whipped or excited prior to slaughter.

EQUIPMENT FOR SLAUGHTERING.

It is essential to have the proper equipment for rapid and skillful work at killing time: A straight sticking knife, a cutting knife, a 14-inch steel, a hog hook, a bell-shaped stick scraper, a gambrel, and a meat saw (fig. 1). More than one of each of these tools may be necessary if many hogs are to be slaughtered and handled to best advantage. A barrel is a convenient receptacle in which to scald hogs. The barrel should be placed at an angle of about 45 degrees at the end of a table or platform of proper height. The table and barrel should be fastened securely to protect the workmen. A block and tackle will reduce labor. All the tools and appliances should be in readiness before beginning.

KILLING AND DRESSING.

Ordinarily it is not necessary to stun or shoot a hog before sticking, although sometimes it is done. If the hog is stuck without being stunned, it should be squarely on its back when stuck. Two men can reach under and grasp the legs on the side of the body opposite to them and with a quick jerk turn the hog over on its back. One man can stand astride the body with his legs just back of the hog's shoulders, taking a good grip on the forelegs (fig. 2). In this position the hog can be held in place while the other man does the sticking.

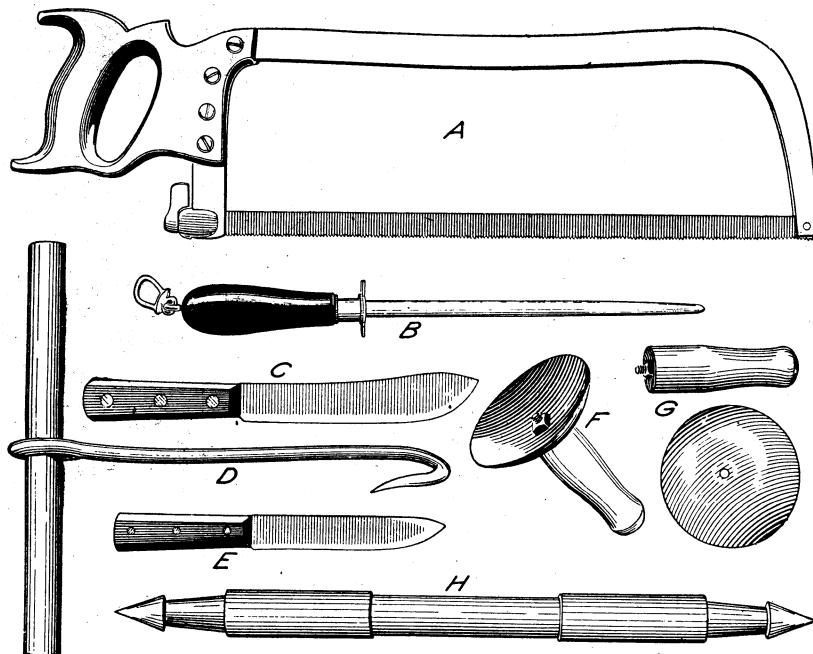


FIG. 1.—Tools for killing and dressing hogs. *A*, meat saw; *B*, 14-inch steel; *C*, cutting knife; *D*, hog hook; *E*, 8-inch sticking knife; *F*, bell-shaped stick scraper; *G*, separate parts of stick scraper; *H*, gambrel.

STICKING.

A narrow, straight-bladed knife (see *E* in fig. 1) serves well for sticking a hog. The knife should be pointed directly toward the root of the tail and held in a line with the backbone. Thrust the knife in directly in front of the breastbone, and keep in a straight line so as not to stick a shoulder, causing blood to clot, which results in waste in trimming or a shoulder which keeps poorly. After the knife has been inserted 6 or 8 inches, turn it and withdraw. This severs the vessels in the neck and insures better bleeding. Avoid sticking the

heart, for in that case the blood will not be pumped from the arteries. After sticking, the hog may be released; but preferably the animal may be strung up by a hind leg to facilitate thorough bleeding.

SCALDING AND SCRAPING.

The most convenient vessel in which to heat water for scalding is a large caldron or a kettle, which should be located near the place of butchering. If the water is heated in the house, it should be boiling when removed from the stove. If the hog is not too large, a barrel may be used for scalding. The arrangement for most efficient scald-



FIG. 2.—Position for sticking the hog.

ing is shown in figure 3. If the barrel is not large enough to accommodate the hog, a blanket or several sacks may be laid over the carcass and scalding water poured over it. The blanket or sacks will retain the moist heat long enough to loosen the hair.

At the time the hog is scalded the water should have a temperature of from 145° to 155° F. If the water is too hot the hair may set, causing even more trouble than if too cold. A teaspoonful of lye or a small shovelful of wood ashes added to every 30 gallons of water will aid in removing the scurf. After adding either of these materials the water should be stirred thoroughly.

If the barrel is used, insert the hog hook in the lower jaw, place the hog on the table, and slide it into the barrel (fig. 3). The rear end of the hog is scalded first for the reason that if the water is too

hot and the hair sets it can be removed more easily from the rear than from the fore part. The hog should be kept moving in the water to be sure that no part rests against the side of the barrel. Occasionally the hog should be drawn out of the water to air, when the hair may be "tried." When the hair and scurf easily slip from the surface, scalding is complete. The same test for determining whether scalding has continued long enough may be used when blankets or sacks are used, and the dressing of the carcass should also proceed in the same manner. Pull the hog out upon the table and quickly remove the hair and scurf from the legs and feet. The simplest way to do this is to twist the legs in both hands. Use the

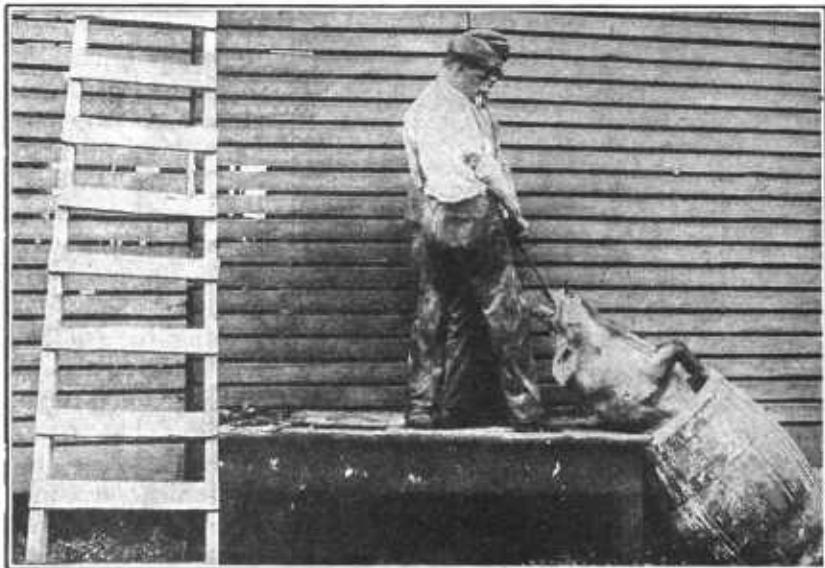


FIG. 3.—A convenient arrangement for scalding.

hog hook to remove the dewclaws while they are still hot. Remove the hair and scurf from the rear end of the hog by means of a bell-shaped scraper.

Cut the skin lengthwise for about 3 or 4 inches just below the hocks in both hind legs. Loosen the tendons in each leg and insert the gambrel. Scald the front part of the hog and pull it out on the table as before. Remove the hair and scurf immediately from the ears, forelegs, and head, as those parts cool very quickly. Use the bell-shaped scraper to remove the remaining hair and scurf. If the hair fails to yield in any particular part, cover that portion with a gunny sack and pour on hot water. When most of the hair and scurf is removed pour hot water over the entire carcass and by means of a knife shave off any hair that is left. Hang the hog up, pour a bucketful of cold water over it, and scrape off the remaining dirt or scurf.

Much of the heavy labor may be avoided by use of a hoist, such as a block and tackle, for lifting the hog.

REMOVING ENTRAILS.

After the hog is hung up and the surface is clean the next step is to remove the entrails. Cut through the mid line, beginning at the top, and continue cutting down to the head. Cut around the rectum on each side and pull it out between the pelvic bones.



FIG. 4.—Removing the intestines.

Place the knife between the first and second fingers of the left hand, inserting the fingers where the opening has been made, and with the right hand carry the knife down the body and force through the breastbone to the opening in the neck. The fingers will serve as a guide in making the cut and will protect the intestines. When the opening has been made, remove the fat which surrounds the stomach. Remove the intestines, stomach, and gullet in one operation, thus preventing contamination of the

carcass by the stomach contents. Remove the pluck, consisting of the heart, lungs, and windpipe, after cutting the diaphragm, which is the membrane that separates the organs of the chest from the stomach, bowels, and other abdominal organs. By cutting between the light and dark portions of the diaphragm and continuing down along the backbone the entire pluck may be easily removed. To facilitate cooling, the carcass should be split or sawed down the backbone. In splitting or sawing the carcass be careful to cut near the mid line.

THE LEAF FAT.

While the carcass is still warm remove the leaf or kidney fat in order to facilitate its cooling. To remove the leaf fat, peel it upward

with the fingers, beginning at the bottom. The kidneys, which are in this fat, should be removed. The leaf fat should be spread out on a table to cool, with the thin membrane side turned down. The gut fat should not be mixed with the leaf fat in rendering.

COOLING THE CARCASS.

The carcass should be cooled rapidly after slaughtering, but not allowed to freeze. Select a day when there is chance for cooling the carcass before the surface freezes. The desirable temperature for cooling meat is from 34° to 40° F. In summer it is necessary to have refrigeration. In the fall it is best to kill in the afternoon, allowing the carcass to cool overnight. Hang the carcass in a dark cellar or cool outbuilding where flies can not get to it. Fresh meat absorbs odors very readily; for that reason do not hang the carcass in a freshly painted room or in a room with tar, kerosene, or gasoline.

CUTTING UP A HOG.

A carcass should not be cut up until it has thoroughly cooled. The usual farm method of cutting up a hog is to remove the head, sever the ribs on each side of the backbone, take out the backbone, and divide the carcass into two equal parts. The ribs are taken out before the sides are "blocked." Another method is to split the carcass with a saw or cleaver as near the mid line as possible. Cut each half into four parts, head, shoulder, middle, and hams, as shown in figure 5, right side.

HEAD.

The head is generally removed before the carcass is split into halves. Cut about an inch back of the ears, making a complete circle around the neck. If the cut does not strike the atlas joint, twist the head and it will yield. The fat of the head may be used for lard and the fleshy parts for sausage or headcheese. The jowl is sometimes used for cooking with vegetable greens.

SHOULDER.

Cut off the front foot about 1 inch below the knee. The shoulder cut is made through the third rib at the breastbone and across the fourth. Remove the ribs from the shoulder, also the piece of backbone which is attached. Cut close to the ribs in removing them so as to leave as much meat on the shoulder as possible. These are "shoulder or neck ribs" and make an excellent dish when fried or baked. If only a small quantity of cured meat is desired, the top of the shoulder may be cut off about one-third the distance from the top and parallel to it. The fat of the shoulder top may be used for lard and the lean meat for steak or roasts. It should be trimmed smoothly. In case the shoulders are very large divide them cross-

wise into two parts (see fig. 6). This enables the cure mixture to penetrate more easily and therefore lessens the danger of souring.

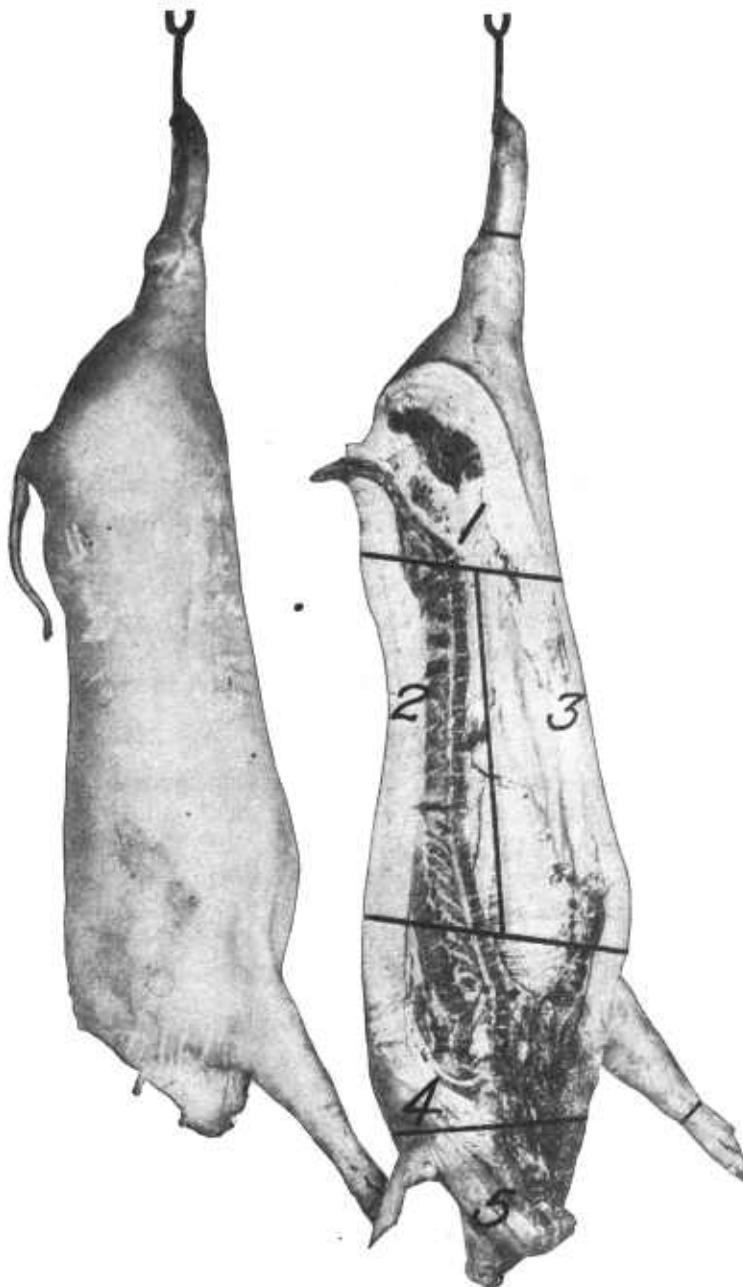


FIG. 5.—Cuts of pork: 1. Ham. 2. Loin. 3. Bacon. 4. Shoulder. 5. Head.

The fat trimmings should be used for lard and the lean trimmings for sausage.

MIDDLING OR BACON.

The ham is removed from the middling by cutting just at the rise in the backbone and at a right angle to the shanks, as shown in figure 5.

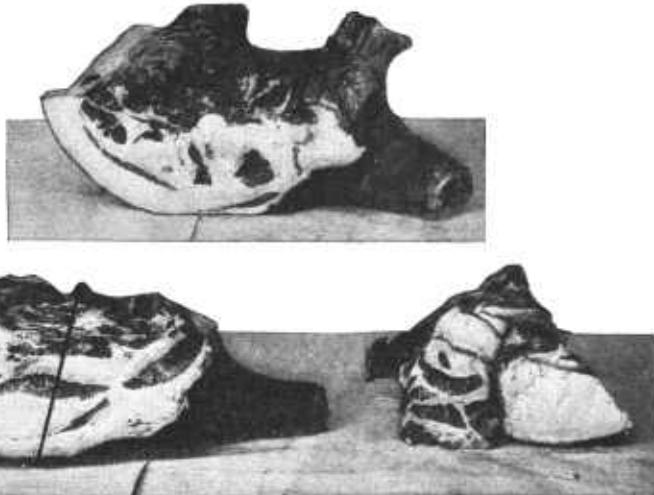


FIG. 6.—The shoulder cuts and trimmings.

The loin and fatback are cut off in one piece, parallel with the back just below the tenderloin muscle on the rear part of the middling. Remove the fat on the top of the loin, but do not cut into

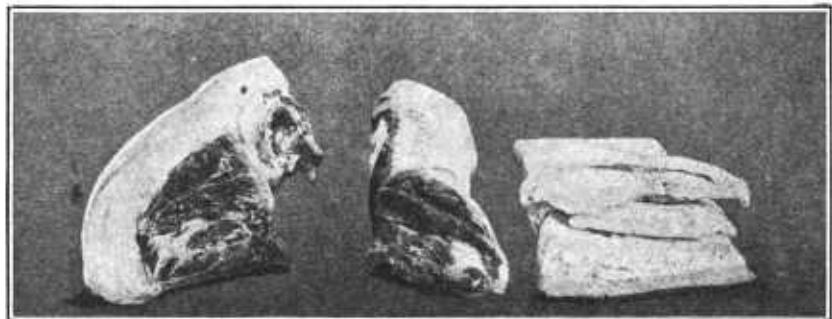


FIG. 7.—Untrimmed loin, trimmed loin, and loin trimmings.

the loin meat. The lean meat is excellent for canning or it may be used for chops or roasts and the fatback for lard. The remainder should then be trimmed for middling or bacon. Remove the ribs, cutting as close to them as possible. If it is a very large side, it may be cut into two pieces. Trim all sides and edges as squarely as possible (fig. 9).

HAM.

Cut off the foot about 1 inch below the hock joint. All rough and hanging pieces of meat should be trimmed from the ham. It should then be trimmed smoothly, exposing as little lean meat as possible, because the curing hardens it (fig. 8). All lean trimmings should be saved for sausage and fat trimmings for lard.



FIG. 8.—Ham and ham trimmings.

The other half of the carcass should be cut up in similar manner.

MEAT TRIMMINGS AND FAT TRIMMINGS.

After the carcass has been cut up and the pieces are trimmed and shaped properly for the curing process there are many pieces of lean meat, fat meat, and fat which can be used for making sausage and lard. The fat should be separated from the lean and used for lard. The meat should be cut into convenient-sized pieces to pass through the grinder.

RENDERING LARD.

The leaf fat makes lard of the best quality. The back strip of the side also makes good lard, as do the trimmings of the ham, shoulder, and neck. Intestinal or gut fat makes an inferior grade and is best rendered by itself. This should be thoroughly washed and left in cold water for several hours before rendering, thus partially eliminat-

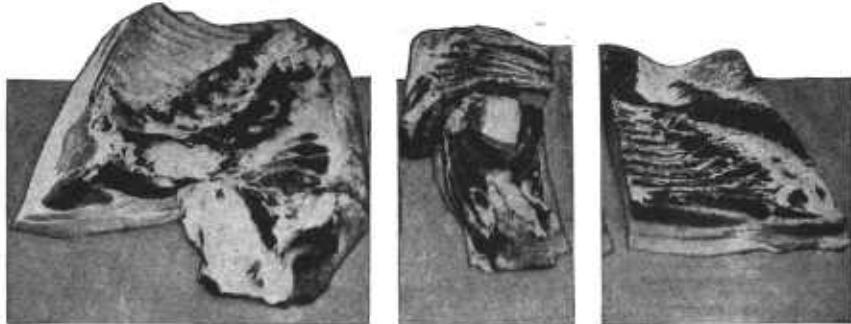


FIG. 9.—A side of bacon and bacon trimmings.

ing the offensive odor. Leaf fat, back strips, and fat trimmings may be rendered together. If the gut fat is included, the lard takes on a very offensive odor.

First, remove all skin and lean meat from the fat trimmings. To do this cut the fat into strips about $1\frac{1}{2}$ inches wide, then place the strip on the table, skin down, and cut the fat from the skin. When a piece of skin large enough to grasp is freed from the fat, take it in the left hand and with the knife held in the right hand inserted between the fat and skin, pull the skin. If the knife is slanted downward slightly, this will easily remove the fat from the skin. The strips of fat should then be cut into pieces 1 or $1\frac{1}{2}$ inches square, making them about equal in size so that they will try out evenly (fig. 10).

Pour into the kettle about a quart of water, then fill it nearly full with fat cuttings. The fat will then heat and bring out the grease without burning. Render the lard over a moderate fire. At the beginning the temperature should be about 160° F., and it should be increased to 240° F. When the cracklings begin to brown, reduce



FIG. 10.—Pieces of fat cut for rendering.

the temperature to 200° F. or a little more, but not to exceed 212° F., in order to prevent scorching. Frequent stirring is necessary to prevent burning (fig. 11). When the cracklings are thoroughly browned, and light enough to float, the kettle should be removed from the fire. Press the lard from the cracklings. When the lard is removed from the fire allow it to cool a little. Strain it through a



FIG. 11.—A suitable kettle for rendering lard.

muslin cloth into the containers. To aid cooling stir it, which also tends to whiten it and make it smooth.

Lard which is to be kept for a considerable time should be placed in air-tight containers and stored in the cellar or other convenient place away from the light, in order to avoid rancidity. Fruit jars make excellent containers for lard, because they can be completely sealed. Glazed earthenware containers, such as crocks and jars, may

also be used. All containers should be sterilized before filling, and if covers are placed on the crocks or jars, they also should be sterilized before use. Lard stored in air-tight containers away from the light has been found to keep in perfect condition for a number of years.

When removing lard from a container for use, take it off evenly from the surface exposed. Do not dig down into the lard and take out a scoopful, as that leaves a thin coating around the sides of the container, which will become rancid very quickly through the action of the air.

CURING PORK.

The first essential in curing pork is to make sure that the carcass is thoroughly cooled, but meat should never be allowed to freeze either before or during the period of curing.

The proper time to begin curing is when the meat is cool and still fresh, or about 24 to 36 hours after killing.

VESSELS FOR CURING.

A clean, hardwood molasses or sirup barrel is a suitable vessel in which to cure pork. The barrel should be clean and tight so as to prevent leakage. A large stone jar is the best container in which to cure meat, though the initial cost is high; such a container is very easily kept clean. If a barrel is used repeatedly for curing pork, it is necessary to scald it out thoroughly before fresh pork is packed in it.

CURING AGENTS.

Salt, saltpeter, sugar, and molasses are the principal preservatives used in curing pork. The use of borax, boric acid, formalin, salicylic acid, and other chemicals is prohibited in connection with meats and products to which the Federal meat-inspection law is applicable.

Salt when applied alone to meat makes it very hard and dry, because its action draws out the meat juices and hardens the muscle fibers. Saltpeter is used to hasten the curing of the meat. It is more astringent than salt and should be used sparingly. Sugar and molasses soften the muscle fibers and improve the flavor of the meat; hence a combination of salt and sugar makes a good cure.

PLACE FOR CURING.

A cool, well-ventilated cellar, free from rats, is the most desirable place for both brine and dry curing. The smokehouse may also be used for this purpose, but it should be observed that when curing by the dry-salt method special attention should be given to the ventilation to prevent excessive dryness.

Cold-storage and ice plants generally have rooms equipped with partitioned shelves, where farmers may store their meat during the process of curing at an even temperature, which will insure excellent results. This should be beneficial in southern climates, where the weather is warm or subject to sudden change. In localities where such refrigeration facilities have not been established cooperative cold-storage plants conducted by a number of farmers in a community may be found to be a good investment, as plants of that kind may be used also for the purpose of manufacturing ice during the summer and the power may be utilized further in generating electricity for lighting.

DRY CURE COMPARED WITH SWEET-PICKLE OR BRINE CURE.

There are two methods of curing pork—the dry cure and the sweet-pickle or brine cure. The dry cure is preferred, as it is simpler and requires less handling of the meat, as will be observed from the formulas outlined in the following paragraphs. The sweet-pickle or brine cure is not advocated in the southern sections of the country, in view of the uncertain temperatures, the cure being retarded when the temperature ranges above 50° F., causing the meat to spoil. Dry-cured meat improves with age and is better several months after it is smoked. Irrespective of the curing method used, it is advisable before curing to rub the surface of the meat with fine salt and allow it to drain, flesh side down, for from 6 to 12 hours.

DRY-CURED PORK.

Formula No. 1.—For each 100 pounds of meat use—

- 8 pounds salt.
- 2½ pounds molasses or sirup, warmed slightly.
- 2 ounces saltpeter.
- 3 ounces black pepper.
- 2 ounces red pepper.

Mix the ingredients well. Rub the mixture over the meat thoroughly and pack it away in a barrel, box, or on a table. About the third day break the bulk and repack to insure thorough contact with the cure mixture, then allow the meat to remain until the cure is completed. This will take two days in cure for each pound that the individual pieces of meat weigh; for example, a 10-pound ham will take 20 days. After the meat has cured hang it in the smokehouse without washing. (See p. 22 for directions for smoking.) When the meat is packed in tight barrels the liquid formed will aid in curing the heavier pieces of meat, which should be at the bottom.

Some persons attempt to use the foregoing formula without the saltpeter, but the result will not be satisfactory. The saltpeter should by no means be omitted.

SWEET-PICKLE OR BRINE-CURED PORK.

Formula No. 2.—For each 100 pounds of meat use—

- 9 pounds salt.
- 2½ pounds sugar or 4 pounds molasses or sirup.
- 2 ounces saltpeter.
- 4½ gallons water.

If the weather is warm 10 pounds of salt is preferable.

Allow four days for curing each pound of ham or shoulder and three days for each pound of bacon and smaller pieces. For example, a 15-pound ham will take 60 days; a piece of bacon weighing 10 pounds, 30 days.

All the ingredients are placed in the water and thoroughly stirred. The brine mixture should be prepared the day before it is to be used, so that it will be completely dissolved. Place the hams on the bottom of the container, shoulders next, bacon sides and small cuts on top. Cover with boards weighted with stones or bricks, as iron rusts and stains the meat. Pour the pickle in and be sure that it covers the meat thoroughly. In seven days take out all the meat, remove the pickle, replace the meat in the container, weight it down, then cover again with the pickle. Repeat this process every seven days until cure is completed.

If the pickle becomes ropy, take out all the meat and wash it and the container thoroughly. Boil the ropy pickle, or, better, make new pickle. When each piece of meat has received the proper cure, remove it from the pickle and wash in lukewarm water. String it and hang it in the smokehouse. (See p. 22 for directions for smoking.) The temperature of the smokehouse should not exceed 120° F. Smoke the meat until it has a good chestnut color.

CURING SMITHFIELD HAMS.

The following method for producing Smithfield hams has been furnished:

The hams are placed in a large tray of fine salt, then the flesh surface is sprinkled with finely ground saltpeter until they are as white as though covered by a moderate frost; or, say, use 4 to 6 ounces of the powdered saltpeter to each 100 pounds of green hams.

After applying the saltpeter, salt immediately with the fine salt, covering the entire surface well. Then pack the hams in bulk, skin-side down, but in piles not more than 3 feet high. In ordinary weather the hams should remain thus for three days. Then break bulk and resalt with fine salt. The hams thus salted and resalted should now remain in bulk one day for each pound; that is, a 10-pound ham should remain 10 days and in like proportion of time for larger and smaller sizes. When the cure is complete wash

with tepid water until the hams are clean, and after partially drying rub the entire surface with finely ground black pepper. They should then be hung in the smokehouse and the important operation of smoking begun. The smoking should be done very gradually and slowly, extending through 30 or 40 days.

After the hams are cured and smoked they should be repeppered to guard against vermin and then be bagged. Such hams improve with age and are in perfect condition when 1 year old.

PICKLED PORK.

Fatbacks cut into suitable pieces for curing are generally treated in the following manner: The pieces of meat are packed in a container and a pickle made of the following ingredients is poured over the meat: To 4 gallons of water add 10 pounds of salt and 2 ounces of saltpeter for each 100 pounds of meat.

PICKLED PIGS' FEET.

The feet may be used for pickled pigs' feet or pig's-foot jelly.

In preparing pickled pigs' feet, place them in salt pickle for several days. Then boil them for a varying length of time, depending upon the size of the feet, taking care to remove them from the kettle before the separation of the meat from the bones. Split the feet lengthwise, place them in a jar or other receptacle, and cover with vinegar to which bay leaves, allspice, and whole black pepper have been added.

Pig's-foot jelly is prepared by curing the feet for several days in salt pickle, after which they should be boiled until the meat separates from the bone. Add vinegar, allspice, and pepper, and pack into molds.

MAKING SAUSAGE.

Trimming and pieces of meat which otherwise might be wasted may be converted into some form of sausage. Sausage making is a trade well worth learning. Often on the farm when animals are butchered for home consumption portions of the carcass are not utilized to the best advantage. A demand for fresh and smoked country sausage always exists, and it is just as important for every farmer to know how to make good sausage as it is to know how to make good hams and bacon.

The only equipment necessary to make sausage is a meat cutter with a stuffer attachment. A knife, cord string, and casings or muslin bags also will be needed. Muslin bags can be made of any size, but the most convenient are 12 inches long by 2 inches in diameter. When sausage is stuffed in muslin bags they should be paraffined after stuffing. Sausage stuffed in muslin bags and paraf-

fined keeps longer and better than in casings. Sausage will keep very well in stone crocks or tin pans if a layer of hot lard or paraffin is poured over the top.

PURE PORK SAUSAGE.

Good pork sausage may be made as follows:

| | |
|----------------------------|------------------------|
| 65 pounds fresh lean meat. | 2 ounces fine sage. |
| 35 pounds fat. | 1 ounce ground nutmeg. |
| 1½ pounds salt. | 4 ounces black pepper. |

Cut the meat into small pieces, mix and add the spices, and then put through the grinder, using the small plate. After it is well

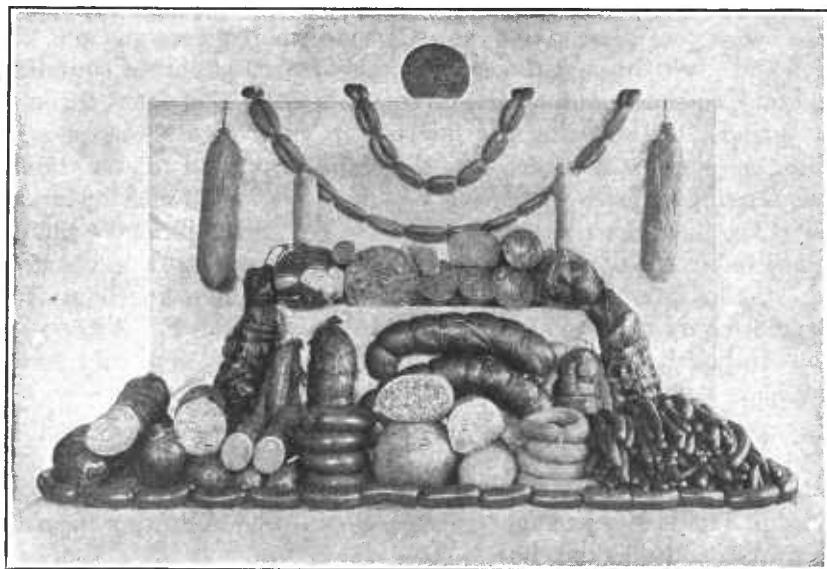


FIG. 12.—A display of various kinds of sausage.

ground, mix thoroughly to be sure that it is uniformly seasoned. No water should be added if the sausage is to be stored away in bulk. If it is to be stuffed in casings a little water may be necessary to soften the meat so that it will slip easily into the casings.

SMOKED OR COUNTRY SAUSAGE.

The following ingredients are used in making smoked or country sausage:

| | |
|------------------------|-------------------------|
| 85 pounds lean pork. | 1 ounce red pepper. |
| 15 pounds beef. | 1 ounce sweet marjoram. |
| 1½ or 2 pounds salt. | 1 ounce mace. |
| 4 ounces black pepper. | |

Cut the meat into small pieces and sprinkle seasoning over it, then run it through the grinder, using the small plate. Put it away in a

cool place for from 24 to 36 hours, then add a little water and stuff into hog casings and smoke in a very cool smoke until a dark-mahogany color is obtained.

FRANKFURT OR VIENNA SAUSAGE.

Frankfurt or Vienna-style sausage is more popular with the manufacturers and the trade than any other kind. It is made as follows:

| | |
|---------------------------------|-----------------------------------|
| 70 pounds beef. | 2 ounces nutmeg. |
| 30 pounds pork (not too lean). | $\frac{1}{4}$ ounce black pepper. |
| 20 pounds water. | 1 or 2 ounces red pepper. |
| $\frac{1}{2}$ or 2 pounds salt. | |

Cut the beef into small pieces, salt it, and allow it to cure for 48 hours in a cool place. Cut the pork into small pieces and put the beef and pork through the grinder together. Put into a container and add the water and spices. After it is all mixed put it through the grinder again, using the fine plate. Stuff into sheep casings. After the sausage is stuffed into the casings by means of the thumb and forefinger, press the casing together at about 4-inch intervals. Twist the first link two or three times. The next link made should be twisted in the opposite direction to keep the casing from untwisting. After it is twisted into links, hang it in the smokehouse for about 2 hours at a temperature not to exceed 125° F. After it is smoked, boil it for 5 or 10 minutes; then plunge it into cold water and hang it in a cool place.

BOLOGNA-STYLE SAUSAGE.

Bologna-style sausage is used extensively for lunches on picnics or outings. Its keeping qualities are excellent. The following ingredients are used in making it:

| | |
|---------------------------------|------------------------|
| 60 pounds cured beef. | 2 ounces mace. |
| 40 pounds pork. | 1 ounce coriander. |
| 20 pounds water. | 4 ounces black pepper. |
| $\frac{1}{2}$ or 2 pounds salt. | |

Grind the beef and let it cure for 24 hours in a cool place, then grind it very fine.² Put the pork through the grinder, using the medium plate. Then put the beef and pork together into a container and add the spices and water. Mix thoroughly until it takes on a dull color and becomes sticky. Stuff into weasands, large beef casings, or in beef rounds. This sausage can also be stuffed into muslin bags and paraffined. It will keep perfectly prepared in this way. Allow it to hang about 20 minutes in a cool place. Smoke for about 2 hours, or until a good color is obtained, at a temperature not to exceed

² Beef should be ground, salt and seasoning added, and the bulk stored away for from 24 to 48 hours before using it for sausage. Fresh meat stuffed into casings and smoked, invariably spoils.

140° F. After the bologna is smoked it should be cooked, the weasands and rounds about 30 minutes, and the larger bolognas about 1½ hours, at a temperature of 160° F. To tell when bologna is cooked enough, squeeze it in the hand, and if done it will squeak when the pressure is released. Place in cold water for about 30 minutes and then hang it up in a cool place to keep.

BLOOD SAUSAGE.

Blood sausage is made of the following ingredients:

| | |
|---|-------------------------|
| 25 pounds scoured back fat or shoulder fat. | 1 pound salt. |
| 7 pounds cured fat skins. | ½ ounce white pepper. |
| 6 pounds blood. | 1 ounce sweet marjoram. |
| ½ pound onions. | ¼ ounce cloves. |

Cook the fat, which has been dry-cured or sweet-pickled, for about 1 hour and the skins 2 hours at a temperature of 200° F. When cooked put through grinder, using small or medium plate. Put into a container, add blood and seasoning, and mix thoroughly. Stuff into large beef casings and boil, in the same water that the meat was cooked in, until the sausage floats. Dip the sausage into cold water and hang away to cool.

HEADCHEESE.

The head is frequently used for making headcheese. The head should be shaved clean, the snout skinned and nostrils cut off just in front of the eyes. Cut out the eyes and eardrums. The fattest part should be used for lard. When the head is cleaned, soak it in water for some time to extract the blood and dirt. After the head is thoroughly cleaned cover it with water and boil until the meat separates from the bones. Tongues may be cooked with the head. When thoroughly cooked take out the meat, saving the liquor for future use. Chop the meat up fine. Season with the following for every 50 pounds of meat:

| | |
|--------------------------|-------------------------|
| 2 gallons of the liquor. | 1 ounce red pepper. |
| 1½ pounds salt. | 4 ounces ground cloves. |
| 3 ounces black pepper. | |

All should be mixed thoroughly so that proper seasoning is obtained. If casings are available, stuff the mixture into large beef casings. A hog stomach, after it is thoroughly cleaned, may be used. If the meat is stuffed into casings it should be boiled again in the same liquor in which the meat was boiled. The meat in the casings should be boiled until it floats, then placed in cold water for a short time. Store it away in a clean, cool place on a shelf or table. Place a board over the meat in the casings with a weight on top in order to hold the shape and to prevent the moisture from collecting in one

spot. If there are no casings available in which to stuff the meat it should be kept in shallow pans.

LIVER PUDDING.

All the odds and ends of trimmings not used for sausage, resulting from cutting up the hog carcass, may be used in making liver pudding. The head, if used, should be cleaned as previously described under "Headcheese." The jowl should be cut off and salted down. The head, liver cut into slices and some beef or veal, if any is at hand, should be put into a kettle and boiled. The skin which has been cut from the fat also can be boiled with this meat. The skin will cook more quickly than the meat, so that it should be put into a cloth sack and removed when thoroughly cooked. Livers also cook in a very short time and should be removed. The meat should cook until it falls from the bones. All the meat except the skin and liver should be ground, using the smaller grinder plate. To 40 pounds of meat add about 1 gallon soup (the broth the meat was cooked in) and the following seasoning:

| | |
|--------------------------|------------------------------|
| 1½ pounds salt. | 1 ounce black pepper. |
| 3 ounces sweet marjoram. | Garlic or onion, if desired. |
| 1 ounce allspice. | |

The seasoning should be worked into the meat. This finished product can be put into jars covered with paraffin or stuffed into beef rounds. When stuffed into casings it should be cooked until it floats in the same water in which the meat was cooked. Then place in cold water until it is thoroughly cooled.

SUMMER SAUSAGE.

The following ingredients are used to make summer sausage:

| | |
|---|--|
| 25 pounds cured beef free from sinews. | 6 ounces white pepper. |
| 15 pounds pork trimmings. | 1 ounce whole black pepper. 1 ounce whole mustard seed. |

This sausage can be made in cold weather only. All the meat is put through the grinder and spices added. No salt is needed, the cured beef being salty enough. Mix it all thoroughly until it is evenly seasoned. Spread it out in a cool place and leave it for from 36 to 40 hours, then stuff it into hog-bung casings and let hang overnight. Smoke over very cool smoke for several days. This sausage can be kept in a dry place the year round. If it gets moldy, simply wipe the mold off.

SMOKING CURED MEAT.

The process of smoking helps to preserve the meat. Smoking also gives a desirable flavor to the meat if it is smoked properly and with the right kind of fuel.

THE SMOKEHOUSE.

The smokehouse can be made of any size and of the kind of material suitable to the demands of the owner. If a very small quantity of meat is to be smoked once a year, a barrel or a box (fig. 13) will answer. On the other hand, if a considerable quantity of meat is smoked and the house is to be permanent, it should be built of brick, concrete, or stone to be fireproof (fig. 14). A small building can be used if care is taken to confine the fire in an iron kettle to the center of the room. The safest method is to construct a fire pit outside the house and pipe the smoke into the house. The pipe running from the pit to the house should be buried to prevent crushing.

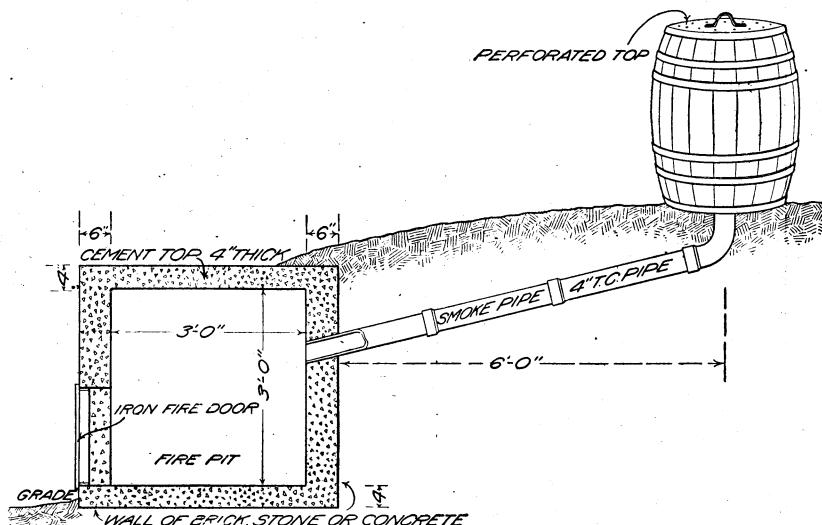


FIG. 13.—A type of smokehouse that can be constructed quickly and cheaply.

A smokehouse, 6 by 8 feet, 14 feet high, will give best results for general farm use. Ventilation should be provided to carry off the warm air and prevent overheating the meat. Small openings under the eaves or a chimney in the roof will control ventilation. If arrangements can not be made to have a fire pit outside the house, it should be built on the floor and a metal sheet constructed to shield the meat. If the meat is hung 6 or 7 feet above the fire, the shield will not be necessary, as at that height the meat will get the benefit of the thick smoke and still hang beyond the reach of the flame.

THE FUEL.

Green hickory or maple wood is the best fuel for smoking. Hard wood is preferable to soft wood. Resinous woods should never be used, as they give an objectionable flavor to the meat. Corncobs may be used, but they deposit carbon on the meat, giving it a dirty appearance.

SMOKING.

Meats which have been cured by the dry-cure method for the proper length of time are ready for smoking. Meats which have been cured by the sweet-pickle or brine method should be removed from the pickle and soaked for half an hour in clean water. If meat has overcured by remaining in pickle longer than the allotted time, soak for half an hour as recommended and three minutes extra for each day overtime for which it has remained in the pickle. Such meat



FIG. 14.—A farm smokehouse, fireproof and fairly tight.

has become pickle-soaked and its quality impaired. After soaking, rinse, fasten the strings securely, and hang in the smokehouse.

Hang the pieces so that they do not touch. This allows proper coloration of the meat to occur and gives good opportunity for circulation of the smoke. Keep the fire going continuously if smoking is to be completed in one operation, holding the temperature as even as possible and not allowing it to go beyond 120° F. From 36 to 48 hours may produce a satisfactory color, but if it is intended to keep the meat until well aged, longer and slower smoking is desirable.

(Some of the old, family methods call for light, intermittent smoking throughout six weeks.)

During warm weather it is better to start a fire every other day rather than heat the meat too much. In the winter, however, if the fire is not kept going, the meat may cool and the smoke will not penetrate properly. As soon as the meat is thoroughly smoked, open the doors and ventilator in order to cool the meat. When the meat is smoked it may hang in the smokehouse, but it is better that it should be wrapped and sacked.



FIG. 15.—Meat hanging in a smokehouse.

The use of "liquid smoke" has become more or less generally practiced in various sections of the country. The Federal meat-inspection regulations prohibit its use in packing houses where inspection is maintained. Meat prepared by farmers on the farms is prohibited by the above-mentioned regulations from interstate shipment if it has been subjected to liquid-smoke treatment.

STORING SMOKED MEATS.

After it is hard and firm, smoked meat may be wrapped in heavy paper and put into muslin sacks. It is very important that the top of the sack be tied properly to keep insects out. Before the hams or strips of bacon are placed in the sacks, remove the strings from the hams. There is a great tendency to use the same strings to hang

up the meat after it is sacked as were used to hang it while smoking. It is impossible to tie the top of the sack and make it insect proof if a string from the meat passes through the paper and sticks out at the top. In tying the top of the sack make a double wrap before tying a knot, which will prevent the entrance of any insects. Each sack may then be painted with yellow wash, used to protect them, and hung up for future use. Never stack hams and bacons in a pile after yellow wash has been applied.

RECIPE FOR YELLOW WASH.

For 100 pounds hams or bacon use—

| | |
|---------------------------|--------------------------------------|
| 3 pounds barium sulphate. | $1\frac{1}{4}$ ounces chrome yellow. |
| 1 ounce glue (dry). | 6 ounces flour. |

Half fill a pail with water and mix in the flour, breaking up all lumps thoroughly. Mix the chrome yellow in a quart of water in a separate vessel, add the glue and pour both into the flour-and-water mixture. Bring the whole to a boil and add the barium sulphate slowly, stirring constantly. Make the wash the day before it is required. Stir it frequently while using, and apply with a brush.

DIRECTIONS FOR COOKING AN OLD HAM.

Soak several hours, thoroughly remove all mold and loose pieces, and rinse well.

Cover with cold water, add two tablespoonfuls of vinegar, one-half cup brown sugar, four cloves and one bay leaf, and heat to boiling. (The amount of cloves and bay leaf may be increased if desired, especially for larger hams.)

Reduce the heat to a constant simmer and allow to cook at this temperature at the rate of 20 minutes for each pound weight.

Remove from the fire, but keep the ham in the liquor in which it was cooked, until cold; then remove from the container and allow to drain.

Take off the skin, score the fat in inch blocks, and cover with a coating of brown sugar and crumbs. Stick with cloves 1 inch apart.

Bake in a slow oven until nicely browned, basting at intervals with one-half cup of water and one tablespoonful of vinegar.

SHIPPER'S CERTIFICATE.

Farmers who ship their cured meats must comply with official State and Federal regulations. Below appears a sample shipper's certificate such as must be used in interstate shipments of uninspected meat or meat food products which are from animals slaugh-

tered by the farmer on the farm. In providing blank certificates for the purpose this sample should be followed. In size it should be 5½ by 8 inches.

SHIPPER'S CERTIFICATE.

Date _____, 19____.

Name of carrier _____

Shipper _____

Point of shipment _____

Consignee _____

Destination _____

I hereby certify that the following-described uninspected meat or meat food products are from animals slaughtered by a farmer on the farm, and are offered for transportation in interstate or foreign commerce as exempted from inspection according to the act of Congress of June 30, 1906, and at this date they are sound, healthful, wholesome, and fit for human food, and contain no preservative or coloring matter or other substance prohibited by the regulations of the Secretary of Agriculture governing meat inspection.

Amount and weight.

Kind of product _____

(Signature of shipper.)

(Address of shipper.)

Two copies of this form to be presented to the common carrier with each shipment.

ECONOMIC SUGGESTIONS ON KILLING AND CURING.

Cleanliness is the most important factor in butchering and in curing meats. Meat very easily becomes tainted.

Save all pieces of meat for sausage. There are many ways of converting it into a palatable product.

All waste fat, trimmings, and skin should be rendered and the product used to make soap.

Bones should be crushed or ground for chicken feed.

Never put meat in to cure before the animal heat is out of it.

Always pack meat skin-side down when in the curing process, except the top layer in a brine cure, which should be turned flesh-side down.

Keep close watch of the brine, and if it becomes "ropy," change it.

Do not forget to turn or change meat several times during the curing process.

The fat of dry-cured meat sometimes becomes yellow, but that does not make it unwholesome.

It takes more time to smoke dry-cured than brine-cured pork.

Slow smoking is much better than rapid smoking, and there is less chance of causing the meat to drip.

If meat becomes moldy, brush off the mold with a stiff brush or trim the moldy parts off with a knife.

Be sure that meat is thoroughly cooled before sacking.

The seasoning of sausage is generally governed by taste.

Fresh sausage can be kept under a covering of lard for a number of days.

HOME CANNING OF PORK AND PORK PRODUCTS.

While the curing of meat with salt, followed by smoking, is in universal use and has been known as far back as records go, the canning of meats, although relatively new, has become one of the most important methods of food preservation.

This method has been made practicable by the introduction of small steam-pressure cookers, suitable for use in the home, and which make the process much more safe. By their use all kinds of home products, whether animal or vegetable, can be preserved successfully in an attractive, palatable, and economical way. On the farm, where often fresh meat can not be bought readily, the value to the housekeeper of such a supply of provisions always available can not be overestimated.

STEAM-PRESSURE COOKER OR CANNER NECESSARY.

For the successful canning of meats a steam-pressure cooker (fig. 16) is necessary, as only by its use can the required temperature for properly sterilizing meats be obtained. The needed temperature is 250° F., equivalent to steam pressure at 15 pounds per square inch.

The use of the pressure cooker in the household is not confined to canning, for with it daily meals can be prepared in much less time than by ordinary methods of cooking and its cost saved many times over.³

Canning meat without steam pressure is not safe on account of the danger of imperfect sterilization and consequent spoilage.

Meat can be canned in either tin or glass. With glass the very best quality of jar rubbers must be used, as meats will not keep if the rubber ring is cracked or damaged, so that air, and with it bacteria, can enter.

³ Instructions for cooking meals in steam-pressure cooker can be had from Office of Extension Work, South, States Relations Service, United States Department of Agriculture, Washington, D. C.

HOW TO USE THE STEAM-PRESSURE COOKER OR CANNER.

Pressure cookers should be of standard quality, constructed to maintain uniformly at least 15 or 20 pounds of pressure and be tested for considerably higher pressures to insure safety to the operator. The home steam-pressure cooker consists of a kettlelike receptacle with a lid that can be securely fastened, making a steam-tight joint. It is fitted with a gauge recording the steam pressure per square inch, generally expressed in pounds. A thermometer giving the inside temperature is sometimes attached. There must be a safety

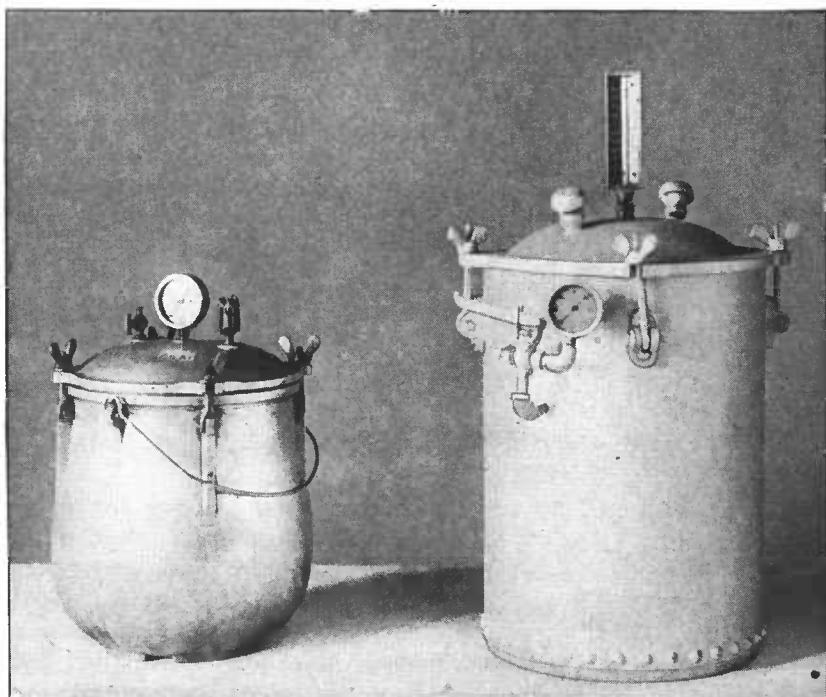


FIG. 16.—Two types of pressure cookers in common use.

valve for the escape of steam as soon as the pressure reaches a certain number of pounds per square inch. In some cookers this safety valve is adjustable as to the pressure reached before it "blows off." There must also be a pet cock through which air and steam can be let out, thus reducing the pressure to zero before opening the cooker; otherwise the person attempting to unfasten the cover may be seriously scalded.

When the women do the canning, and if it is desired also to use the pressure cooker in the preparation of daily meals, an aluminum pressure cooker may be preferred on account of not being so heavy to lift as those made of boiler steel.

PREPARATION OF PORK FOR CANNING.

Handle all meats in a cleanly manner. As soon as the animal heat has disappeared the meat may be prepared for canning. It should always be cooked first—roasted, fried, broiled, baked, or stewed—just as though for immediate serving, so that the flavor can be largely retained (fig. 17). If raw meat is packed, the time for sterilization will have to be prolonged considerably and the can will contain boiled or steam-cooked meat. On the other hand, if the meat is roasted,

fried, or otherwise prepared and hot gravy stock is added, the time required for sterilization will not be so long, and when the can is opened it will contain the roasted, fried, or otherwise prepared meat with the flavor of the freshly cooked product.

Season the meat according to individual taste and cook it thoroughly. Whatever method is chosen, the meat should be cooked tender and not be red in the center.

From the hog carcass the head may be cleaned and used for headcheese and canned; the brains may be soaked in salted water to remove any blood, then fried or otherwise prepared, and canned. The tongue may be lightly salted, boiled, and canned with a little meat

FIG. 17.—Hams in pan ready for roasting. Results are more satisfactory when meat is cooked before canning. Cooked meats improve in the processing, while raw meats become less attractive after processing and standing in storage.

jelly added. The cleaned snout may be boiled, pickled, and canned. The feet, after scalding and thorough cleaning, may be boiled, pickled, and canned. The liver may be soaked in salted water and cleaned carefully; then, after the large veins have been removed, it should be sliced or diced and fried, used for liver sausage, or for liver paste, and canned. The kidneys, having been split open and the little sac in the center removed, should be soaked in several changes of salted water, sliced, and fried, or cut into cubes, stewed, and then canned. The large intestines may be cleaned, scalded, scraped, soaked in several changes of salted water, made into chitterlings, fried or boiled, and canned.



The heart should be cleaned from blood clots, the coarser veins removed, sliced, and made into goulash or spiced heart, or it may be sliced or diced, fried, and then canned. After the lard is rendered the remaining cracklings may be canned, if desired, for crackling bread. The clean skin, cut from the fat used for lard, should be soaked in several changes of cold water, then with just water enough added to cover the skin, cooked for one hour at 10 pounds' pressure. The liquid should then be strained through a double layer of cheesecloth and allowed to cool. When cold the grease can be easily removed from the top and the resulting stock will be thick enough to jelly. It can be reheated and canned like soup and later be used as gelatin for puddings, etc., or it can be used as addition to soups and gravies. The thoroughly boiled skin can be chopped up and mixed with other meat scraps for use in making scrapple or similar dishes.

The bones cut from the fresh meat or from the roasted meat may be utilized for soup stock, although they will not give so much or so rich a soup as that made from beef. The soup stock may be canned. The hams, shoulders, tenderloin, backbone, and spareribs may be roasted, sliced, and packed in cans. (The bones should be removed before canning.) Add hot gravy stock to fill all spaces between the meat pieces. Seal and process. Sausage, made from pork, may be put into casings or made into little cakes, fried and canned. The side meat and fatback may be cured or salted and kept in this way. If the cured bacon or side meat does not keep well through the summer, as sometimes happens in the warmer parts of the country, it may be sliced about one-fourth inch thick, dipped in beaten eggs, and fried to a nice brown color, then packed in cans and processed like other cooked meat.

In some places the blood of the butchered hog is used as food. The blood is first beaten with an egg beater or mayonnaise beater as soon as taken from the butchered animal. It is then strained and mixed with barley or hominy grit, a little finely diced fat pork, some milk, raisins cleaned and scalded, sugar, and spices. It is then put into well-cleaned casings until half full, after which the casings are tied or sewed at the ends and slowly boiled in plenty of water for 1½ hours. The blood may also be made into blood pudding. Either the blood sausage or pudding may be canned.

Thus every part of the hog suitable for human food may be saved and canned; the by-products, which too often are wasted in ordinary farm butchering, may more than pay for the extra labor and the containers needed for canning all the animal.

CONTAINERS.

Some people prefer to use glass jars for containers, although tin cans are used in many homes, especially in the Southern States. If

glass jars requiring rubber rings are used the highest quality of rings should be procured. With hermetic-seal jars, be sure that the sealing composition on the cap is unbroken. For some jars it is necessary to use a special machine to put the cover on and seal the jar.

CANNING IN TIN CANS.

There are two types of tin cans in general use, the "cap-and-hole" can and the "sanitary" can. Either of these may be had as plain tin cans or inside-lacquered tin cans. If an acid, like vinegar, has been used in the preparation of the meat to be canned, the inside-lacquered can should be used.

For sealing the cap-and-hole can it is necessary to use a capping steel and a tipping copper. The capping steel must correspond in size to the hole in the can and should fit the cap to be used. A suitable apparatus for heating these irons is needed, and some solder and flux must also be provided.

For the sanitary cans it is necessary to have a mechanical sealer (for home use a hand sealer may be used) by which the whole top is put on in one operation.

To make flux.—Put some commercial muriatic acid into a glass or crockery vessel (a metal container will not do), add strips of sheet zinc (old zinc jar tops from which the glass lining has been removed will do) until no more can be dissolved. Add to this an equal quantity of water and strain through a piece of muslin. This is called flux and should be used with care. When canning, have some flux in a saucer or other container in which to clean the soldering tools. Keep separately in a glass bottle, properly labeled, the quantity which will be needed for sealing the cans.

Capping steel and copper.—Capping steel and copper should be kept coated with solder in order to make the solder flow evenly when sealing. It may be necessary to clean them with coarse sandpaper or even with a file, but care must be taken to see that the edges are kept true. For coating the steel and copper with solder prepare a handful of powdered sal ammoniac mixed with a few pieces of solder and put into a can. Heat the already smoothed capping steel or tipping copper until almost red hot, dip into the flux and then into the sal ammoniac and solder, turning it about and rubbing until bright and well coated with solder, then dip in the flux again.

Filling the cans.—Tin cans must be washed clean in warm water, rinsed, and then with the caps immersed from 10 to 15 minutes in boiling water to remove all dirt or chemicals that may be clinging to the tin. Remove from the water and drain. Never use rusty cans. If sanitary cans are used, the tops must not be put into water, but

should be wiped with a damp cloth just before putting them on the cans and sealing them.

Cut the meat into sizes according to can openings and pack in the cans (fig. 18), filling them within one-half an inch of the top, then pour in boiling hot gravy to fill all spaces between the slices of meat (fig. 19). Do not fill can entirely full, but leave from one-fourth to one-half inch of space at the top of the can. If there is not gravy enough, boiling water or soup stock may be added. Wipe the can top absolutely clean, and especially the grooves around the opening, which must be entirely free from grease. It is best to use a small piece of cloth dipped in boiling water for removing the grease. Wipe dry with a clean cloth.

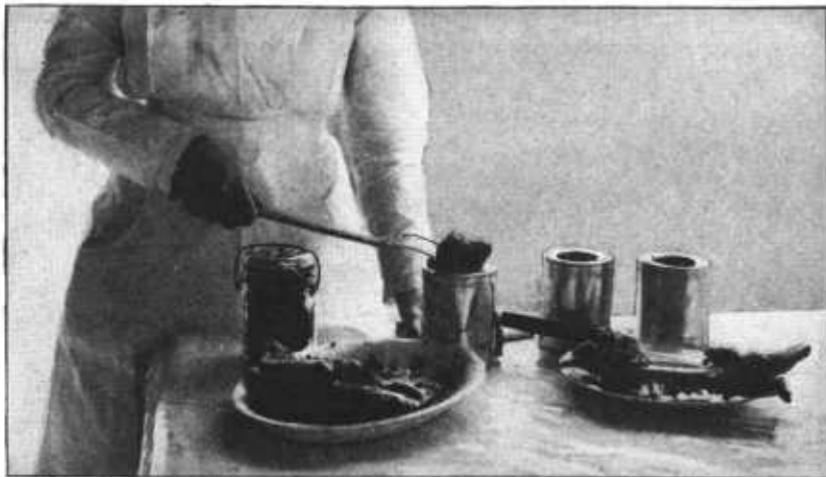


FIG. 18.—Packing meat in cans.

Sealing the caps in place.—Wipe the caps and place them on the cans. Apply flux carefully around the edge of cap in the groove with a small brush or a little mop made by tying a small piece of cloth around a small stick. The flux is used to make the solder adhere to the tin. Apply the clean, hot, capping steel, holding the cap in place with the center rod. As the steel is lowered turn steadily until the solder flows, hold the rod firmly and lift the steel with a sudden twist to swing the melted solder around the groove evenly. Keep the center rod on the cap until the solder sets, which will take only a few seconds.

Exhausting.—Exhausting is driving out the surplus air before completely sealing the can. This is done to prevent possible swelling of the can from the expansion of the air, which might cause it to be taken for a "swell" indicating spoilage due to bacterial action. Furthermore, the presence of air may cause the canned material to

act on the tin and produce salts of tin, which are objectionable from the standpoint of health. If cold meat is placed in the cans, it will always be necessary to exhaust. Place the cans in a wire tray and lower into boiling water to within 1 inch of the top for from 5 to 8 minutes, or just long enough to cause the contents of the can to be heated to 180° F. Exhausting is not necessary, however, if meat is placed hot in cans and boiling gravy added, as the steam from the hot gravy will drive out the air, and the cans should then be sealed at once. When sanitary cans are used the exhausting is done before the top is put on.

Tipping.—Close the small hole in the cap immediately after exhausting or, if filled with hot meat and gravy, immediately after capping. Apply flux as for capping and use a little wire solder (bar

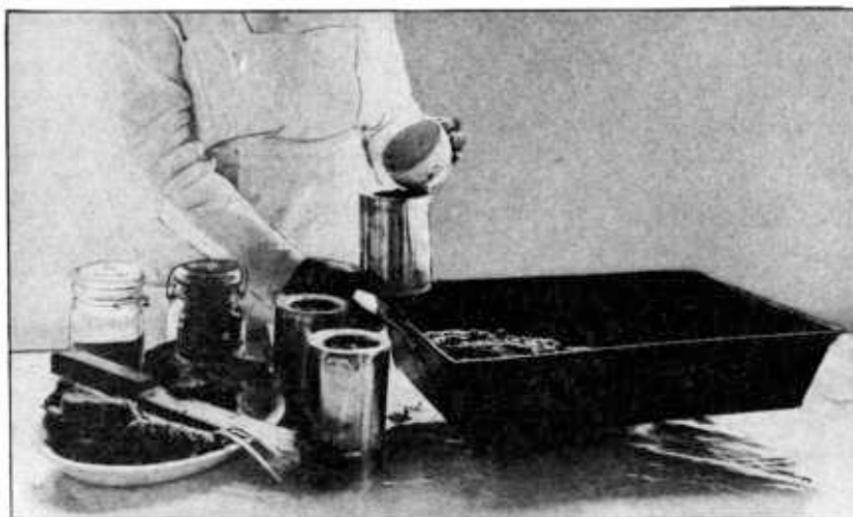


FIG. 19.—Adding gravy to meat in cans.

solder can be used in case the wire solder is not at hand). Hold the solder with the left hand near the hole and barely touch with the hot copper after it has been dipped in the flux, so that only a bead will drop and cover the hole.

Testing for leaks.—As it is essential that the soldering shall completely seal the cans, it is necessary to test the cans before processing (sterilizing) in order to be sure there are no leaks. If the cans have been filled too full or a piece of meat touches the top, it is almost impossible to seal effectively, and little pinholes will be formed in the melted solder. The center rod of the capping steel should never be so pointed that it closes the little venthole entirely when sealing a can containing hot liquid, because the steam formed is liable to escape through the melted solder and thus cause pinholes. Test by submerging the cans in boiling water. If little air bubbles come

through, there are leaks and the can must be resoldered before processing.

Processing.—Processing is the sterilizing of the cans after sealing. Pour boiling water into the steam-pressure cooker until it rises nearly to the level of the rack, but not over it (generally to a depth of from 1 to 1½ inches in the small home pressure cookers). Place the cooker over the fire so that the water will boil vigorously, put the cans to be sterilized into the crate that is furnished with the cooker (or place directly on the rack in the canner), lower this into cooker, put the cover on, and screw down the clamps so that the cover is steam tight. Leave the pet cock open until steam escapes, then partly close, so that only a very small amount of steam escapes. If the safety valve is adjustable, adjust it to "blow off" at the pressure desired, generally 15 pounds at least. Raise the temperature by means of a quick fire until the gauge on the cover of the retort shows 15 pounds of steam pressure. Count time (in accordance with the recipes given later) from the moment this pressure has been reached, which is equal to a temperature of 250° F. This temperature kills the spores of all varieties of bacteria that are destructive to canned meats. A lower fire will now keep the heat up. Keep the temperature uniform at 250° F., or 15 pounds' pressure, until the time for processing is up; then before unfastening the clamps that hold the cover down open the pet cock or safety valve to let all steam escape. When the gauge shows no pressure, unfasten the clamps, take off the cover, and lift out the cans. The cans are now sterilized. Test for leaks by one of the several methods used for this purpose. For instance, while the cans are hot place them on the floor and tap each one with a little stick. A tight can will give a clear, ringing metallic sound; a leaky can a dull sound. If leaks are found, the cans must be resoldered and again processed. Immerse the sealed cans in cold water to cool quickly and stop the cooking.

CANNING IN GLASS JARS.

For canning in glass the jars are washed clean and put into cold water in a vessel with a false bottom of slatted wood, heated to the boiling point, and kept boiling from 10 to 15 minutes. Then fill (within one-half inch of top) with meat and gravy in just the same way as in the case of tin cans. Adjust the rubber and put the lid in place. If screw-top jars are used, put the top in place but do not screw it down tight (leave about half a turn loose). For glass-top jars, adjust the rubber and glass top. See that the spring is not too loose. Put the wire clamp over the top, but do not press down the spring. For glass tops fastened with a screw ring, fasten the top in position but do not make perfectly tight. When hermetic-seal cans are used, seal as with other jars. Adjust the metal cap, which has a

sealing composition on the inside of the lid (be sure that the sealing composition is even all around the lid, as a leak will appear if the composition is broken in places). Adjust the clamp to hold the lid in place and put into the canner.

Exhausting is not necessary with glass jars, except when they are sealed by a special machine before being processed, as the heating will force the excess air out around the lid. When glass jars are processed the cooker should not be heated so high that steam "blows off" through the safety valve, since this will cause a difference in pressure between the steam on the outside of the jar and that inside the jar, resulting in a part of the contents being forced out or the rubber being pushed out of place. The temperature, of course, must be high enough to sterilize the contents, which, for meats, is equivalent to not less than 15 pounds of steam pressure. At the end of the period of sterilization do not let the steam escape from the cooker, but turn out the fire or lift the vessel from the fire and let it cool until the steam gauge shows that there is no more pressure. Then open the pet cock, unfasten the clamps, remove the cover, and lift out the jars carefully, avoiding any draft, as cold air striking them is likely to cause breakage. Seal immediately by fastening the lid or pressing down the wire springs (the hermetic-seal jar does not need any attention), and allow to cool in a place free from draft. When cold, test for leaks. If any are found the products will have to be resterilized at the temperature and for the time given for regular sterilization. The rubber may also have to be changed before resterilization.

RECIPES FOR CANNING PORK.⁴

The following recipes are given to show how pork products can be prepared and canned in the home. The recipes are merely guides and may be changed to suit the individual taste. The time and temperature given for the processing period, however, should not be changed, as any reduction in either may result in insufficient sterilization and consequent spoilage of the product. It is also necessary that *nothing but absolutely fresh and cleanly handled meats be used.*

In these recipes the time is given for tin cans. Pint glass jars require the same time for processing as the No. 2 tin cans, and quart jars the same time as the No. 3 tin cans.

ROAST PORK.

Select a piece of pork for roasting—generally the ham, shoulder, or loin—scrape skin clean, and wipe with a damp cloth. If the ham

⁴ For information on canning beef, poultry, fish, etc., write to the Office of Extension Work, South, States Relations Service, Washington, D. C., for Circular "A" 92, "Home Canning of Meats and Sea Foods with the Steam Pressure Canner."

is used and skin is left on, cut with point of knife just through skin so as to dice skin, and trim with some cloves and little tufts or parsley (if desired). Salt and pepper to taste should be sprinkled over the ham. For a ham weighing 8 to 10 pounds use 1 to 2 tablespoons of salt and from one-half to 1 teaspoon of pepper. Heat in a roasting pan from 2 to 3 tablespoons of grease. When hot put in the roast and sear quickly all over to seal the pores and prevent loss of the juice of the meat. Add 2 small turnips to the roasting pan and one-half to 1 cup of boiling water. Leave skin-side up (do not turn) and baste frequently.

If skin and fat are removed from ham before roasting, lard with narrow strips of larding pork, alternating with rows of little tufts of parsley. Add one small turnip, one small root of celeriac, a few

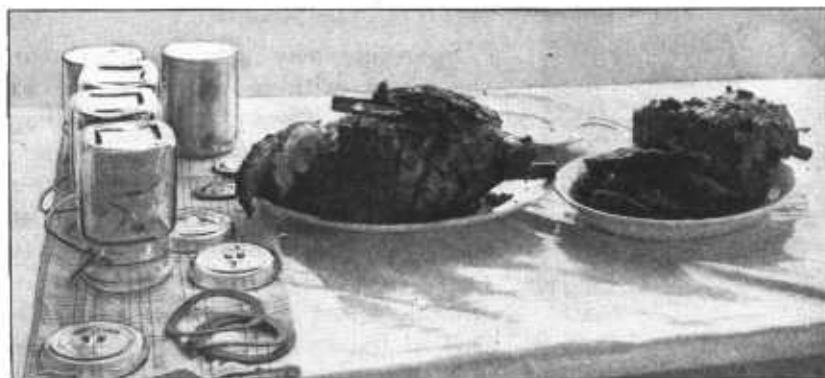


FIG. 20.—Cooked hams ready to be canned.

cloves, and five or six whole peppercorns to roasting pan. Meat may be rubbed with cloves of garlic if desired. Season as in recipe above. Baste frequently.

When cooked through and nicely browned, slice and pack in cans to within one-half inch of top of can. Add the gravy from the roasting pan, with boiling water or soup stock added, so that it barely covers the meat. (There must be at least one-fourth inch space between gravy and top of can.) Cap (exhaust 5 minutes if meat and gravy have cooled; if cold, exhaust 10 minutes; if hot, exhausting is not necessary), tip (seal sanitary cans in machine), and proceed in steam-pressure cooker as follows:

No. 1 cans, 40 minutes at 250° F., or 15 pounds of steam pressure.

No. 2 cans, 45 or 50 minutes at 250° F., or 15 pounds of steam pressure.

No. 3 cans, 55 or 60 minutes at 250° F., or 15 pounds of steam pressure.

In case meat is fat, time for processing must be prolonged 10 minutes. Backbone may be roasted in a similar way; cut meat from bones and can as already stated.

SPARERIBS.

Roast the spareribs in the usual way, seasoning to taste. Cook until done, browning them nicely. With a sharp knife cut down the inside of each rib, remove the rib bone, and cut the meat into pieces that can pass through the can opening. Make gravy stock by adding water to the pan grease. Pack meat in cans and add the boiling hot gravy stock to within one-half inch of top of can. Cap, tip (seal sanitary cans), and process as follows:

No. 2 cans, 45 minutes at 250° F., or 15 pounds of steam pressure.

No. 3 cans, 60 minutes at 250° F., or 15 pounds of steam pressure.

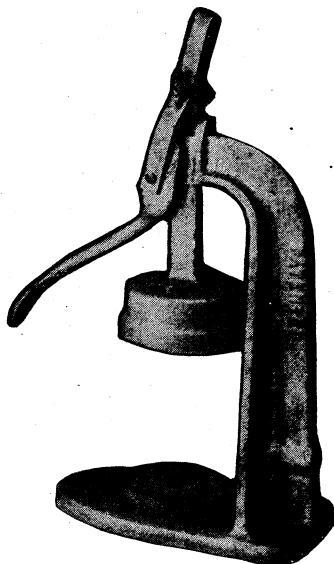


FIG. 21.—A common type of jar sealer.

Spareribs may also be broken in the center with a cleaver or an ax (do not cut apart), folded together, and the opening between the ribs filled with pared, sliced apples and a few washed and soaked prunes. Then tie or sew together at edge, season to taste, and roast until done. Cut in suitable pieces and pack in cans with part of the cooked apples and prunes.

Add gravy stock, boiling hot from the roasting pan. Seal and process as above if bones are removed. If bones are left in, process as follows:

No. 2 cans, 75 minutes at 250° F., or 15 pounds of steam pressure.

No. 3 cans, 90 minutes at 250° F., or 15 pounds of steam pressure.

PORK TENDERLOIN.

The tenderloin may be canned separately. Remove from carcass, wipe with damp cloth, and sear quickly in hot grease. Then season according to taste and roast until nicely browned. Cut in can lengths and pack into cans. Add hot gravy stock, prepared from pan grease with soup stock or hot water added, to within one-half inch of top of can. Seal at once, or, if packed cold, exhaust before sealing. Process:

No. 2 cans, 50 minutes at 250° F., or 15 pounds of steam pressure.

No. 3 cans, 65 minutes at 250° F., or 15 pounds of steam pressure.

The tenderloin may also be prepared as directed and packed in cans together with suitable vegetables (first boiled and seasoned), then sealed and processed as given above.

PORK CHOPS.

The chops are quickly seared in hot grease, salt and pepper (to taste) are added, and they are cooked until done and nicely browned. The bone may be removed and a short piece of boiled macaroni substituted. Then pack into cans about half full and fill in with boiled string beans, spinach, sauerkraut, or small, nicely browned potatoes. If desired, some gravy stock may be added. Exhaust 5 minutes, seal, and process.

No. 2 cans, 60 minutes at 250° F., or 15 pounds of steam pressure.

No. 3 cans, 75 minutes at 250° F., or 15 pounds of steam pressure.

In case it is preferred to leave the pork rib on the chop, when packed in the cans, add 15 minutes to the processing period given above.

TONGUE.

Tongues may be cleaned, salted, and lightly smoked, then boiled, skins removed, and packed in cans with a little soup stock or meat jelly added. They may also be cleaned thoroughly, rubbed heavily with salt, and left standing with salt sprinkled over them for 8 to 10 hours. Then boil until done, remove the skin, and pack in cans with a little of the liquid in which they were boiled (thinned with some boiling water in order not to be too salty). In either case cap, tip, and process:

No. 1 cans, 40 minutes at 250° F., or 15 pounds of steam pressure.

No. 2 cans, 50 minutes at 250° F., or 15 pounds of steam pressure.

BRAINS.

The brains should be soaked in several changes of cold water to draw out the blood, and the membranes removed. The brains may then be fried in hot grease, sprinkled with salt and pepper, packed in No. 1 flat cans, and the grease in which the brains were fried, thinned with a little hot water, added. Cap, tip, and process:

No. 1 cans, 45 minutes at 250° F., or 15 pounds of steam pressure.

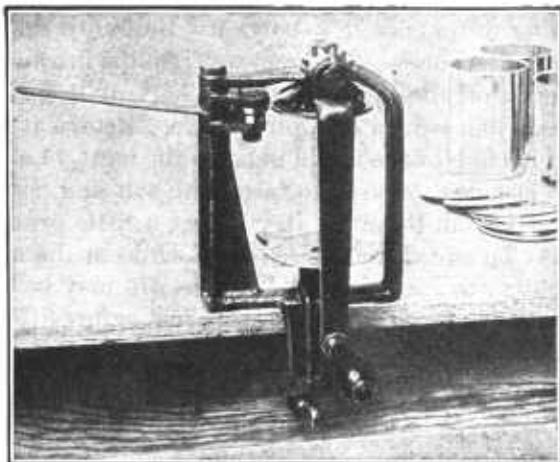


FIG. 22.—Small hand sealer for No. 2 cans.

HEADCHEESE.

Cut a hog's head into four pieces. Remove the brains, ears, skin, snout, and eyes. Cut off the fattest parts for lard. Put the lean and bony parts to soak overnight in cold water in order to extract the blood and dirt. When the head is cleaned put it over the fire to boil, using water enough to cover it. Boil until the meat separates readily from the bones. Then remove from the fire and pick out all the bones. Drain off the liquor, saving a part of it for future use. Chop the meat fine with a chopping knife. Return it to the kettle and pour on enough of the liquid to cover the meat. Let it boil slowly for 15 to 30 minutes. Season to taste with salt and pepper just before removing it from the fire. Bay leaves, a little ground cloves, and allspice may be added and boiled for awhile in the soup. If not condensed enough to form jelly, a little gelatin may be dissolved in cold water and mixed well with the cheese just before filling into the cans. Pack while hot in cans to within one-half inch of top. Cap, tip, and process:

No. 2 cans, 50 minutes at 250° F., or 15 pounds' pressure.

When ready to serve, thoroughly chill the can before opening. Serve cold.

KIDNEYS.

The kidneys after being split open and the little sack inside removed should be soaked in several changes of lightly salted water. They should be cut into slices about one-fourth to one-half inch thick, lightly seared in hot grease, sprinkled with salt and pepper, and fried to a brown color. Then pack in cans with onions that have been peeled, sliced, and nicely browned in hot grease. Then pour in hot gravy made from adding water to the pan grease until the can is filled to within one-half inch of top. Cap, tip, and process.

No. 2 cans, 45 minutes at 250° F., or 15 pounds of steam pressure.

No. 3 cans, 55 minutes at 250° F., or 15 pounds of steam pressure.

Kidneys may also be prepared as a stew or ragout and filled hot into cans. Cap, tip, and process for same length of time as for fried kidneys.

BOLOGNA-STYLE SAUSAGE.

To each 10 pounds of lean beef use 1 pound of fat pork, or bacon, if preferred. Chop fine and season with 1 ounce of salt to each 4 pounds of meat, 1 ounce of the best black pepper (ground, pure) to each 6 pounds of meat, and a little ground coriander. Stuff into casings called beef "middles" or beef "rounds," and smoke for 10 to 12 hours. Cook in boiling water until the sausages float. Take up the

sausage, cut in can lengths, pack into cans and add hot liquid, in which the sausages were cooked, to within one-half inch of top. Cap, tip, and process:

No. 2 cans, 45 minutes at 250° F., or 15 pounds of steam pressure.

PURE PORK SAUSAGE.

An excellent pork sausage may be made by using three parts of fresh lean pork to one part of fat pork. Cut into small pieces and pass through meat grinder, using a rather coarse plate. Weigh the meat, and for 25 pounds add one-half pound salt, one-half ounce fine sage, one-fourth ounce ground nutmeg, and from one-half to 1 ounce of black pepper. Mix thoroughly and pass again through meat grinder, using a small plate. Form into little round or flattened cakes and fry in deep fat until nicely browned. When several handfuls have been cooked, pour off the grease and add water to the brown parts in bottom of pan to make gravy stock. Add this while hot to the packed cans. Return the grease to pan and cook another panful of sausage cakes. When packed hot, seal cans (partly seal glass jars), and process:

No. 2 cans, 45 minutes at 250° F., or 15 pounds of steam pressure.

No. 3 cans, 55 minutes at 250° F., or 15 pounds of steam pressure.

Sausage cakes may also be canned without any liquid gravy stock added. Pack cans to within one-half inch of top of can. Exhaust from 3 to 5 minutes, seal, and process:

No. 2 cans, 75 minutes at 250° F., or 15 pounds of steam pressure.

No. 3 cans, 90 minutes at 250° F., or 15 pounds of steam pressure.

PORK CAKES.

Use the following ingredients:

| | |
|---|--|
| 4 pounds lean pork. | 2 large onions, minced. |
| 2 pounds fat pork. | 1 clove garlic, minced (may be omitted). |
| 2 or 3 tablespoons salt (or salt to taste). | 2 bay leaves, powdered or broken into small pieces. |
| 1 teaspoon black pepper. | 1 teaspoon celery seed, crushed (may be omitted). |
| 1 teaspoon red pepper. | 6 to 12 tablespoons dry, finely chopped bread or cracker crumbs. |
| 1 teaspoon Chile pepper (to taste). | 2 eggs beaten together. |
| ½ teaspoon allspice. | ½ cup to 1 cup of sweet milk. |
| 2 or 3 teaspoons sage (or poultry seasoning). | |
| ½ to 1 teaspoon thyme. | |

Knead well, form in cakes, fry in deep fat until nicely browned, pour off excess of grease, add water, and make gravy. Two or three cookings may be made in one lot of grease. Pack in cans, fill in with hot gravy to within one-half inch of top of can. Cap, exhaust 5

minutes (exhausting is not necessary if packed hot in cans and sealed at once). Tip, and process:

No. 2 cans, 45 minutes at 250° F., or 15 pounds of steam pressure.

No. 3 cans, 55 minutes at 250° F., or 15 pounds of steam pressure.

LIVER SAUSAGE.

Remove the membrane and cut away the large blood vessels. Soak in water 1 to 2 hours to draw out blood. Boil until done. When cooled put through a food chopper or grate fine. Take half as much boiled fat pork as liver. Divide this fat into two portions; chop one portion into $\frac{1}{4}$ -inch cubes; pass the other portion through the food chopper; mix all together thoroughly; add salt, ground cloves, pepper, and a little grated onion to taste. A little thyme and marjoram may be added to suit taste. (For a liver weighing 3 pounds add 1½ pounds fat pork, from 6 to 8 teaspoons salt, 1 teaspoon cloves, 1 teaspoon pepper, 2 small onions, $\frac{1}{2}$ teaspoon thyme, and pinch of marjoram.) This mixture is stuffed into large casings (if no casings are available, make casings of clean white muslin). Cover with boiling water, bring to a boil, and boil for 10 minutes. Pack in cans and fill in with the water in which the sausages were boiled. Cap, exhaust 5 minutes if cooled (if packed hot, exhausting is not necessary), tip, and process:

No 2 cans, 50 minutes at 250° F., or 15 pounds of steam pressure.

No. 3 cans, 65 minutes at 250° F., or 15 pounds of steam pressure.

This liver sausage may also be made from the raw liver and raw pork. In that case proceed in same manner as just described, but process the cans 10 minutes longer at temperature given. It may be served hot or cold.

HOG-LIVER PASTE.

| | |
|--|---------------------------|
| 1 medium-sized liver (about 3 pounds). | 1 teaspoon ground cloves. |
| 1½ pounds fresh fat pork. | 1 small onion, grated. |
| ½ pound butter. | 3 eggs. |
| ½ pound flour. | Milk (as needed). |
| 1 teaspoon pepper. | Salt to taste. |

The fat is chopped very fine. The butter and flour are rubbed together in a kettle placed over the fire, then thinned with milk to a very soft gruel. Into this put the chopped fat. Cook over a very slow fire, in order not to scorch, until fat is pretty well cooked out.

In the meantime get the liver ready. Wash well, remove the skin, and cut away all veins and membranes. Scrape or pass through a meat grinder, then place this mass on a fine sieve or strainer. Into it pour the warm thickening little by little and together with the liver rub through. Into this liver mass as passed through the sieve stir 3 yolks of eggs, 1 teaspoon pepper, 1 teaspoon ground cloves, plenty

of salt (about 2 tablespoons or more, according to taste), 1 small grated onion, and the beaten whites of the 3 eggs. Put into cans that must not be entirely full. Cap, exhaust from 5 to 8 minutes, tip, and process:

4-ounce glass jars, 40 minutes at 250° F., or 15 pounds of steam pressure.
No. 1 flat tin cans, 45 minutes at 250° F., or 15 pounds of steam pressure.

A very good liver paste can be made by taking liver and fat pork, as in recipe above, pass through meat grinder twice, stir well with 2 tablespoons salt, 1. teaspoon pepper, 1 teaspoon ground cloves, 1 finely chopped medium-sized onion, 6 tablespoons cracker or dried-bread crumbs, 3 eggs beaten together, and one-half cup of sweet milk. Fill into cans; cap, exhaust, tip, and process as stated.

GOULASH.

| | |
|---------------------------------------|--|
| 2 pounds cleaned pork heart. | 6 whole peppercorns. |
| 2 ounces butter or any good fat. | 1 blade mace. |
| 2 onions (medium size) chopped fine. | 1 pinch thyme. |
| 1 carrot (medium size) finely sliced. | 1 tablespoon parsley (finely chopped). |
| 1 stalk celery cut in small pieces. | Salt and pepper to taste. |
| 1 pint tomatoes (canned or fresh). | Paprika to taste. |
| 1 bay leaf, broken in pieces. | A little flour. |
| 6 whole cloves. | |

Cut the hearts into 1-inch cubes and sprinkle with flour mixed with salt and pepper. Melt butter or fat in a frying pan. When hot add the chopped onions, carrot, and celery, and brown lightly. Add the meat, prepared as stated, and brown while stirring frequently with a spoon to prevent scorching. When nicely browned empty into a stewpan, add bay leaves, cloves, peppercorns, mace, and thyme tied up in a little bag of cheesecloth, also tomatoes or tomato purée. Cover with soup stock or water and simmer for 45 minutes (for 2 hours if to be served at once and not canned). Remove the bag of spices and season by adding salt, pepper, and paprika to taste. Soy or Worcestershire sauce may be added in small quantities if desired. Add the parsley. Fill hot into cans, seal at once, and process:

No. 2 cans, 50 minutes at 250° F., or 15 pounds of steam pressure.
No. 3 cans, 60 minutes at 250° F., or 15 pounds of steam pressure.

If the different ingredients in this recipe are not at hand, a good goulash may be made by using meat, fat, onions, tomatoes, flour, salt, and pepper, leaving out the other ingredients.

SCRAPPLE.

The cleaned head, feet, all bones cut out of fresh or cooked meat with what meat clings to them, the liver, heart, and all meat scraps not otherwise used may be utilized for making scrapple. Put over

the fire in cold water enough to cover, bring to a boil, and cook until meat falls from the bones. The cleaned skin cut off when preparing the fat for rendering lard can also be used. Put it into the steam-pressure cooker on top of rack and add cold water to cover the skin. Cook at 10 to 15 pounds' steam pressure for one hour. The bones, head, feet, liver, etc., also may be cooked under steam pressure, whereby considerable time is saved, but should not be cooked together with the skin, as it will be more difficult to separate the small pieces of bones when mixed with the cooked skin. Strain the resulting liquid or soup from the bones and from the skin. If too greasy, part of the fat may be skimmed off. Carefully pick out all bones from the meat. Then chop the meat and boiled skin fine and return to the soup. Put over the fire again and bring to a boil. Season to taste with salt and pepper (generally $2\frac{1}{4}$ ounces of salt and one-half ounce of pepper for each gallon of liquid). To this boiling soup and meat add slowly under constant stirring, to prevent lumpiness, a mixture of corn meal, buckwheat flour, and wheat middlings until it is as thick as mush. (The mixture is in the proportion of 50 parts of fresh corn meal, 25 parts of buckwheat flour, and 25 parts of clean wheat middlings.) Stir vigorously while the scrapple is allowed to cook for from 10 to 15 minutes. Remove from fire and pour hot into cans to within one-half inch of top. Seal at once and process:

No. 2 cans, 50 minutes at 250° F., or 15 pounds of steam pressure.

No. 3 cans, 70 minutes at 250° F., or 15 pounds of steam pressure.

The scrapple should be removed from the can, sliced, and browned in a frying pan before serving.